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EXAMINER	
SCIACCA, SCOTT M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/684,706	GELVIN ET AL.	
	Examiner	Art Unit	
	SCOTT SCIACCA	2478	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32,34-63,65-79,83,92,94,101,103 and 112-119* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32,36-63,65-79,83,92,94,101,103 and 112-119* is/are rejected.

7)☒ Claim(s) *34 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communications filed on April 21, 2011. Claims 1, 11, 63, 65-79, 83, 92, 101, 103 and 112 have been amended. Claims 1-32, 34-63, 65-79, 83, 92, 94, 101, 103 and 112-119 are pending in the application.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 21, 2011 has been entered.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 11-12, 14, 16, 18, 21, 28-30, 32, 36, 42-47, 50-53, 55-61, 83, 101, 103, 112-116, 118 and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clare et al. (USPN 6,414,955) (hereinafter Clare) in view of Wichter et al. (USPN 5,608,643) (hereinafter Wichter) and Larsen et al. (WO 98/56140) (hereinafter Larsen).

4. Referring to claim 1, Clare discloses a sensor network comprising a plurality of network elements including:

at least one node (Figures 1-10) coupled among a monitored environment (col. 6, lines 10-30) and at least one client computer (the Office takes the term "client computer" to be broadly construed as "any node which is accessible by a user of the system") (col. 14, lines 12-34),

wherein functions of the at least one node are remotely controllable using the at least one client computer (col. 14-lines 12-34; col. 15, lines 13-16),

wherein the at least one node provides, after the plurality of network elements are self-assembled into a multi-cluster network (i.e. "after the communicating nodes and the interfering nodes have been identified") node information to the plurality of network elements (col. 4, lines 56-67; col. 15, lines 10-24 and 43-56),

wherein the data processing is distributed through the sensor network including at least one of the elements other than the client computer (i.e. "the new node is informed of the local network traffic, routing, and communication schedule") in response to the node information (col. 4, line 58 to col. 5, line 2; col. 18, lines 35-64).

Clare does not specifically disclose that the objects for data processing comprise data and executable code. Nor does Clare specifically disclose that the distribution of data processing varies dynamically based on message priority.

In analogous art, Wichter discloses another distributed sensor network (Status sensors 28; col. 5, lines 52-61) where a node controllable by a client computer distributes data to be processed by other data processing units (col. 10, lines 30-34; col.

4, lines 13-17; col. 8, lines 48-57; col. 8, lines 58-60) and the objects for data processing comprise data and executable code (col. 2, lines 31-34; software modules (executable code) are distributed to the data processing units). Wichter further discloses that the distribution of data processing varies based on message priority (col. 11, lines 52-61).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Wichter with Clare in order to enable managing of a plurality of sensors/devices from a remote location and to allow important messages to be processed immediately while the processing of less important messages, such as status requests, can be delayed until there are no more high priority messages remaining (Wichter, col. 9, lines 43-46; col. 11, lines 52-61).

Clare-Wichter does not specifically disclose that the distribution of data processing varies based on energy cost for communication.

In analogous art, Larsen discloses a wireless mesh network of nodes (see Fig. 1) where the distribution of data processing varies based on energy cost for communication, wherein the energy cost is determined based on one or more attenuation values (see Abstract; *"The transmit power required is calculated from the path loss to the other station. The weaker the received signal the larger the path loss, and thus the more transmit power required. The larger the transmit power required the larger the transmit power required gradient. Since a station routes towards areas of lower transmit power required it will tend to route to other stations that are closer"* – see p. 36, ¶4; *"Path losses may vary from 0 dB up to a maximum of 190 dB (+50 - (-140) = 190)"* – see p. 56, ¶1; *"If station I wanted to route data to station M it could chose to*

transmit either directly to station M, or via stations L or N. Station I would determine which route's power requirement would be the lowest, and use that path for routing of message segments to station M" – see p. 29, ¶3; The path with the lowest required transmit power is the path with the lowest path loss. Path loss, measured in dB, is a term for the attenuation of a radio wave as it travels through space).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Larsen with Clare-Wichter in order to use the least amount of transmission power possible in order to route data from a source to a destination via an optimum route (see Larsen, p. 4, ¶3).

5. Referring to claim 2, Clare discloses the at least one node includes sensing, processing, communications, and storage devices supporting a plurality of processing and protocol layers (col. 19, line 29 to col. 21, line 41).

6. Referring to claim 3, Clare discloses the sensor network supports wireless communications (e.g. abstract).

7. Referring to claim 11, Larsen discloses the attenuation values comprising attenuation values for wired/wireless communication (*"Although the abovementioned patent application describes a packet radio network it will be appreciated that the invention is applicable to other networks in which user stations can communicate with one another via intermediate stations in the network"* – See p. 9, ¶6).

8. Referring to claim 12, Clare discloses at least one redundant information pathway is established among the plurality of network elements (Figure 3).

9. Referring to claim 14, Clare discloses the plurality of node types includes at least one node of a first type (user node) and at least one node of a second type (sensor node) (Figure 14; col. 14, lines 12-34).

10. Referring to claim 16, Clare discloses the plurality of network elements automatically organize in response to the node information, wherein the automatic organizing comprises automatically controlling data transfer, processing and storage within the network (col. 6, line 35 to col. 18, line 1).

11. Referring to claim 18, Clare discloses the data processing is controlled using at least one processing hierarchy, controlling communications among the plurality of network elements (col. 15, lines 10-24).

12. Referring to claim 21, Clare discloses the functions of the at least one node include data acquisition (col. 15, lines 10-15).

13. Referring to claim 28, Clare discloses controlling data processing and data transmission in response to a decision probability of a detected event (col. 15, lines 10-15; col. 21, lines 15-25).

14. Referring to claim 29, Clare discloses the at least one node includes at least one seismic sensor (col. 19, lines 30-43).

15. Referring to claim 30, Clare-Wichter-Larsen discloses the invention substantively as described in claim 29. Clare-Wichter-Larsen does not specifically state the one sensor is external to the one node, however "Official Notice" is taken that both the concept and advantages of providing for an external sensor to the node is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to include an external sensor to provide easy accessibility to the sensor by a repairman, facilitating the ease of future upgrades or replacements.

16. Referring to claim 32, Clare discloses the plurality of network elements are self assembling, wherein search and acquisition modes of the node search for participating elements (e.g. abstract).

17. Referring to claim 36, Clare discloses synchronism is established among the plurality of network elements using the assembly packets (i.e. communication schedules between nodes) (col. 16, lines 28-67).

18. Referring to claim 42, Clare discloses data is collected by the node and at least one operation is performed on the data including energy detection (col. 20, lines 15-56).

19. Referring to claim 43, Clare discloses wherein the routing, processing, storing and fusing are performed in response to at least one result of the energy detection (col. 20, lines 15-56).

20. Referring to claim 44, Clare discloses the routing comprises selecting a data type for routing, selecting one of the plurality of elements to route the data, selecting a route, and routing the data (i.e. a sensor device transmitting data to a user node for display) (col. 18, lines 35-65).

21. Referring to claim 45, Clare-Wichter-Larsen discloses the invention substantively as described in claim 44. Clare-Wichter-Larsen does not specifically disclose transmitting data in the message as a code in a codebook. "Official Notice" is taken that both the concepts and advantages of providing for transmitting codes in messages is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to include transmitting codes from a codebook in messages to the system of Clare to conserve bandwidth in a low-power system, thereby conserving available power for the network.

22. Referring to claim 46, Clare discloses the processing comprises selecting at least one data type for processing, selecting at least one processing type, selecting at least one of the plurality of network elements to perform the selected at least one processing type, and transferring the selected at least one data type to the selected at least one of the plurality of network elements using at least one route through the sensor network (col. 18, lines 35-64).

23. Referring to claim 47, Clare discloses the selection of at least one processing type comprises determining at least one probability (i.e. decision-making) associated with a detected event (monitored environment settings) and selecting at least one processing type in response to the at least one probability (i.e. if the decision is true, do something different than if the decision is false) (Figure 15; col. 18, lines 35-64).

24. Referring to claim 52, Clare discloses the at least one node includes a bi-static sensor and a generator for producing at least one energy beam that is radiated from the plurality of nodes, wherein the at least one energy beam comprises a combined probe beam and a signal code for beam intensity control and propagation management, wherein the at least one energy beam is modulated in time to provide an identifying code corresponding to a source node, wherein the at least one energy beam is acoustic (col. 22, lines 47 to 67).

25. Referring to claim 53, Clare discloses determining a position of the at least one node (col. 22, lines 35-67).

26. Referring to claim 55, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not specifically state protecting communications among the elements using a public key security protocol. "Official Notice" is taken that both the concept and advantages of providing for public key encryption in wireless devices is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to include public key encryption to the system of Clare to provide a basic level of security, thereby reducing the occurrences of eavesdropping by hackers and malcontents.

27. Referring to claim 56, Clare discloses using a GPS device providing location and time information (col. 7, lines 58-67).

28. Referring to claim 57, Clare discloses the node has a communication modem (i.e. a wireless antenna) (Figure 14 and related portions of the disclosure).

29. Referring to claim 58, Clare discloses communications uses multihop communications (Figures 1-10).

30. Referring to claim 59, Clare discloses the monitored environment is an outdoor area (col. 7, lines 58-67).

31. Referring to claim 60, Clare discloses supporting short range and long range communications (Figure 1).

32. Referring to claim 61, Clare discloses the node is contained in a sealed and waterproof system (Figure 14, and related portions of the disclosure).

33. Claims 50, 51, 83, 101, 103, 112 and 119 are rejected for similar reasons as stated above. Furthermore, referring to claim 103, Clare discloses that the distribution of data processing comprises selecting a data type for processing, selecting one of the plurality of elements to process the data, selecting a route, and transferring the data (i.e. a sensor device transmitting data to a user node for display) (col. 18, lines 35-65).

34. Referring to claim 113, Clare-Wichter-Larsen disclose the invention as described in claim 112. Clare-Wichter-Larsen do not specifically disclose routing data of a first type to a first device, and data of a second type to a second device, however this feature is well known in the art (i.e. users interested in temperature data are not interested in motion detection information and therefore would not be routed to those particular systems). By this rationale, “Official Notice” is taken that both the concepts and advantages of separating data destinations based on data type is well known and

expected in the art. It would have been obvious to one of ordinary skill in the art to modify the system of Clare-Wichter-Larsen to route data of different types to different servers in order to separate processing over a distributed system and reducing overhead processing on one system.

35. Claims 114 and 115 are rejected for similar reasons as stated above.

36. Referring to claim 116, Clare discloses a sensor for collecting data, a preprocessor for collecting the data from the sensor (i.e. DSP) , and a processor to perform processing on the data (cols. 19-21).

37. Claim 118 is rejected for similar reasons as stated above.

Claims 4-10, 19, 25, 38-41, 48, 49 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Myer et al. (USPN 6,615,088) (hereinafter Myer).

38. Referring to claim 4, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not specifically disclose the network includes a gateway, a server, and at least one hybrid wired and wireless network. Myer discloses another sensor network which includes at least one gateway 12, at least one server 25, and at least one hybrid wireless and wired network (Figure 1;

col. 2, lines 52-67). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

39. Referring to claims 5 and 6, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose the at least one gateway performs management of communications with at least one remote user. Myer discloses the at least one gateway node (control network portal 12) performs management of communications with at least one remote user (col. 4, lines 28-50). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

40. Referring to claim 7, Myer discloses that the at least one network includes wired networks, wireless networks and hybrid wired and wireless networks (Figure 1; col. 2, lines 52-67).

41. Referring to claim 8, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not specifically disclose the network is the Internet. Myer discloses the network is the Internet 22, (Figure 1). It would be obvious to a person of ordinary skill in the art at the time the invention was

made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

42. Referring to claim 9, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose providing remote accessibility using WWW-based tools to data, code, management, and security functions. Myer discloses providing remote accessibility using WWW-based tools to data, code, management, and security functions (Figure 2). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

43. Referring to claim 10, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not specifically disclose that the gateway is coupled to the network elements, wherein the elements include repeaters and interrogators. Meyer discloses coupling a gateway with a plurality of network elements (Figure 1) and it is well known that repeaters and interrogators exist in the network (i.e. repeaters forward signals over long distances >100m which is necessary for the Ethernet protocol). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

44. Referring to claims 19, 48, and 49 Clare-Wichter-Larsen discloses the invention substantively as described in claim 18. Clare-Wichter-Larsen does not specifically disclose aggregating data processed in a plurality of nodes for further processing by other nodes. Myer discloses polling devices by the master controller 36 in order to monitor the devices status, which can then be sent to a user interface device for display (the device status reports collected by the master controller 36 must inherently be processed by the client GUI device, or other node, in order for it to be displayable to the user) (col. 3, lines 15-25). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

45. Referring to claim 38, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose comprising at least one database separate from the plurality of network elements. Myer discloses comprising at least one database separate from the plurality of network elements (col. 3, lines 45-50). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Myer with Clare-Wichter-Larsen to facilitate device configuration in a network as supported by Myer (col. 1, lines 26-30).

46. Referring to claim 39, Clare-Wichter-Larsen in view of Myer disclose the invention substantively as described in claim 38. Clare-Wichter-Larsen in view of Myer do not specifically disclose that cooperative sensing uses information in the database to provide non-local event correlation. However, it is well known that multiple sensors are used to monitor multiple characteristics of a system (two sensors in a CPU measuring voltage and thermal temperature to ensure that a chip is operating efficiently). "Official Notice" is taken that both the concepts and advantages of providing for cooperative sensing is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to include cooperative sensing to the system of Clare-Wichter-Larsen and Myer to allow numerous physical characteristics to be monitored simultaneously to provide a more detailed description of the monitored area.

47. Referring to claim 40, Clare-Wichter-Larsen in view of Myer discloses the invention substantively as described in claim 29. Claire further discloses data-driven alerting methods that recognize conditions on user-defined data relationships (i.e. user profiles) including coincidence in signal arrival, node power status, and network communication status (col. 18, lines 35-64).

48. Referring to claim 41, Clare-Wichter-Larsen in view of Myer discloses the invention substantively as described in claim 29. Although neither Clare-Wichter-Larsen nor Myer specifically state implementing the database in a small footprint database and in a SQL database systems at a level of at least one server, it is well known that these

features exist and would have been obvious to one of ordinary skill in the art to incorporate a small footprint database to the invention of Clare-Wichter-Larsen and Myer to provide the productivity and reliability that a SQL database allows, while still keeping information search and retrieval times to a minimum.

49. Claims 62 is rejected for similar reasons as stated above. Furthermore Claim 62 recites limitations which are well known and expected in the art (the concept of reusing code is the basis for object-oriented programming, that code may be imported and reused in different situations) and would be considered obvious to one of ordinary skill in the art. Claims 63 and 65-79 recite limitations previously discussed and are further discussed in view of the other art below.

Claims 63, 65-67, 69 and 73-79 are rejected under 35 USC 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Minoz et al. (USPN 6,245,013) (hereinafter Minoz).

50. Claim 63 is rejected based on similar reasoning given above with respect to Claim 1. Clare-Wichter-Larsen does not specifically disclose that the node operates a real time process using a first processor and operates a non-real time process using a second processor.

However, Minoz discloses a sensor device that operates a real time process using a first processor and operates a non-real time process using a second processor (See Figs. 2 & 3; col. 11, lines 18-23).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Minoz with Clare-Wichter-Larsen in order to minimize energy usage in a sensor node that must be able to perform almost constant sampling of data (Minoz, col. 1, lines 45-48).

51. Referring to claim 65, Minoz further discloses that the first processor is a preprocessor (i.e., the real time processor (first processor) performs sampling of data).

52. Referring to claim 66, Minoz discloses that the second processor is configured with an operating system (col. 11, lines 18-23; col. 4, lines 10-12)

53. Referring to claim 67, Larsen discloses the attenuation values comprising attenuation values for wired/wireless communication (*"Although the abovementioned patent application describes a packet radio network it will be appreciated that the invention is applicable to other networks in which user stations can communicate with one another via intermediate stations in the network"* – See p. 9, ¶6).

54. Referring to claim 69, Clare discloses the data processing is controlled using at least one processing hierarchy, controlling communications among the plurality of network elements (col. 15, lines 10-24).

55. Referring to claim 73, Clare-Wichter-Larsen-Minoz does not specifically disclose rebooting the second processor is an acknowledgement is not received in a predefined time period, however "Official Notice" is taken that both the concept and advantages of resetting unresponsive processors in a multiprocessor system is well known and expected in the art. It would have been obvious to one of ordinary skill in the art to reboot the second processor if acknowledgements are not received in a specified time period in order to restore the system to a fully functional state.

56. Referring to claim 74, Clare discloses the node being configured to collect data (col. 6, lines 19-21; sensors measure various types of physically detectable phenomena) and perform an operation on the data (col. 18, lines 35-52; the node processes, stores and routes the data).

57. Referring to claim 75, Clare discloses the routing comprising selecting a data type for routing, selecting a destination to route the data, selecting a route, and routing the data (i.e. a sensor device transmitting data to a user node for display) (col. 18, lines 35-64).

58. Referring to claim 76, Clare discloses the processing comprising selecting at least one data type for processing, selecting at least one processing type, performing the selected at least one processing type, and transferring the selected at least one data type (col. 18, lines 35-64).

59. Referring to claim 77, Clare discloses the processing comprising selected at least one data type for storage, selecting at least one storage type, performing the selected at least one storage type, and transferring the selected at least one data type (col. 18, lines 35-64).

60. Referring to claim 78, Clare discloses the first node transmitting a query and collecting/processing data in response to the query (col. 19, lines 7-12; col. 21, lines 29-38).

61. Referring to claim 79, Wichter discloses that software is transferable to the at least one node and wherein software transfer is remotely controllable (col. 2, lines 31-34; software modules (executable code) are distributed to the data processing units).

Claims 13, 17 and 25 are rejected under 35 USC 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Kraus et al. (USPN 5,184,311) (hereinafter Kraus).

62. Referring to claim 13, Clare-Wichter-Larsen disclose the invention as described in claim 1. Clare-Wichter-Larsen do not specifically disclose the use of a plurality of layered synchronization levels. In analogous art (i.e. data collection using distributed sensors), Kraus discloses a sensor network which comprises a plurality of sensor nodes 201-20n which report data to a plurality of intermediate nodes 221-22p which then report the aggregated and collected data to a top level station 23 (Figure 2; col. 7, lines 11-33). It would have been obvious to one of ordinary skill in the art to combine the distributed data collection techniques of Kraus to the distributed sensor domain as described in Clare in order to realize the benefits of Kraus to the system of Clare, specifically the ability to monitor and characterize relatively small-scale effects rather than network-wide, thereby resulting in regional data correlation and aggregation (Kraus: col. 7, lines 15-20).

63. Claims 17 and 25 are rejected for similar reasons as stated above.

Claims 15, 54 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Davis et al. (USPN 5,742,829) (hereinafter Davis).

64. Referring to claim 15, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare does not disclose distributing code and data anticipated for future use through the sensor network using low priority messages, wherein the

code and the data are downloadable from a storage device. Davis discloses a network wherein distributing code and data anticipated for future use through the sensor network using low priority messages (i.e. in the background), wherein the code and the data are downloadable from a storage device (it is inherent that the code/data are downloaded from a storage device) (col. 6, lines 27-65). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Davis with Clare-Wichter to facilitate the installation of software on heterogeneous clients on the distributed network, thereby reducing installation costs and reducing downtime as supported by Davis (col. 2, lines 10-15).

65. Claims 54 and 117 are rejected for similar reasons as stated above.

Claims 19, 20, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Makansi et al. (US 2002/0154631) (hereinafter Makansi).

66. Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Furthermore it is an inherent feature of Clare-Wichter-Larsen to aggregate the data to be transmitted to a user to conserve energy by reducing the amount of packets and saving bandwidth. Clare-Wichter-Larsen does not disclose the message packets include decoy packets wherein information to be transferred is impressed on random message packets to provide communication privacy. Makansi discloses message

packets include decoy packets wherein information to be transferred is impressed on random message packets to provide communication privacy on a network (e.g. abstract). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Makansi with Clare-Wichter-Larsen to provide messages to be transmitted in ways such that potential adversaries are given access to a relatively little amount of information as supported by Makansi (p. 1 ¶ 8).

Claims 9, 22-24, 26, 27, 37, 68 and 70-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clare-Wichter-Larsen in view of Humpleman et al. (USPN 6,546,419) (hereinafter Humpleman).

67. Referring to claim 9, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose having the node of the first type containing a preprocessor with a state machine, an API and at least one sensor. Humpleman discloses a home sensor network wherein a first node 14 of a first type (Device A) contains a preprocessor with a state machine (it is inherent that a standard microprocessor emulates the effects of a state machine during its pipelining of instructions, fetch, decode, execute, store, etc.), an API (INTERFACE-A.xml), and at least one sensor (h/w) (e.g. abstract; Figure 16; col. 22, lines 52-58). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Clare-Wichter-Larsen with Humpleman to be able to control a plurality of diverse devices having different capabilities to communicate in order to

accomplish tasks or to provide a service as supported by Humpleman (col. 2, lines 38-45).

68. Referring to claim 22, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose having the node of the second type including at lest one preprocessor coupled to at lest one processor and a plurality of API's, wherein the plurality of API's are coupled to control at lest one device. Humpleman discloses a home sensor network wherein the node 14 of the second type (device B), contains at least one preprocessor coupled to at least one processor (it is well known that a server computer has multiple microprocessors embedded within the server which are either directly or indirectly coupled together), a plurality of API's (INTERFACE-A.XML and INTERFACE-B.XML), wherein the plurality of API's are coupled to control at least one sensor device (i.e. smoke detectors) (e.g. abstract; Figure 16; col. 22, lines 52-58). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Clare-Wichter-Larsen with Humpleman to be able to control a plurality of diverse devices having different capabilities to communicate in order to accomplish tasks or to provide a service as supported by Humpleman (col. 2, lines 38-45).

69. Referring to claim 23, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose layering the plurality of API's. Humpleman discloses layering the plurality of API's in the device (Figure 19,

reference characters 72-92). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Clare-Wichter-Larsen with Humpleman to be able to control a plurality of diverse devices having different capabilities to communicate in order to accomplish tasks or to provide a service as supported by Humpleman (col. 2, lines 38-45).

70. Referring to claim 24, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare further discloses enabling distributed resource management by providing network resource information and message priority information to the plurality of network elements (col. 14, lines 12-34; col. 15, lines 10-25). Clare-Wichter-Larsen does not specifically disclose enabling distributed resource management through the plurality of API's. However Humpleman discloses using the API's to enable distributed resource management (i.e. enabling services to be used via the API's) (Figures 15-19 and pertinent portions of the disclosure). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Clare-Wichter-Larsen with Humpleman to be able to control a plurality of diverse devices having different capabilities to communicate in order to accomplish tasks or to provide a service as supported by Humpleman (col. 2, lines 38-45).

71. Referring to claim 26, Clare discloses a preprocessor (ADC) performs data acquisition, and the processor (DSP) performs signal identification (col. 18, lines 35-64).

72. Referring to claim 27, Clare discloses the processor performs reconfiguration and signal identification (e.g. abstract).

73. Referring to claim 37, Clare-Wichter-Larsen discloses the invention substantively as described in claim 1. Clare-Wichter-Larsen does not disclose managing the plurality of network elements as a distributed database using a distributed resource management protocol, wherein the plurality of network elements are reused among different applications, wherein the network elements are used in multiple classes of applications. Humpleman discloses managing the plurality of network elements as a distributed database using a distributed resource management protocol, wherein the plurality of network elements are reused among different applications, wherein the network elements are used in multiple classes of applications (the servers and clients can reside on the same node and execute both client and server applications) (col. 6, lines 18-34). It would be obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Clare-Wichter-Larsen with Humpleman to be able to control a plurality of diverse devices having different capabilities to communicate in order to accomplish tasks or to provide a service as supported by Humpleman (col. 2, lines 38-45).

74. Claims 68 and 70-72 are rejected for similar reasons as stated above.

Claim 92 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clare in view of Wichter and Dupont (USPN 5,729,542) (hereinafter Dupont).

75. Referring to claim 92, Clare discloses a sensor network comprising a plurality of network elements including at least one node configured to be coupled among a monitored environment, wherein the at least one node includes at least one sensor, wherein the at least one node is further configured to process data gathered from the monitored environment by the at least one sensor and to propagate a predetermined identifying code representing the gathered data through the sensor network (See above remarks regarding claim 1).

Clare does not specifically disclose that the plurality of network elements is configured to communicate a high priority message code for a high priority event, wherein, in response to receipt of the high priority message code, the at least one node is configured to broadcast one or more inhibit messages configured to inhibit messaging from nodes not engaged in conveying the high priority event, and wherein a distribution of data processing by the plurality of network elements varies based on a priority of the message.

In analogous art, Wichter discloses another distributed sensor network (Status sensors 28; col. 5, lines 52-61) where a node controllable by a client computer distributes data to be processed by other data processing units (col. 10, lines 30-34; col. 4, lines 13-17; col. 8, lines 48-57; col. 8, lines 58-60), wherein the network elements communicate a high priority message code for a high priority event (col. 16, lines 60-

65). Wichter further discloses that the distribution of data processing varies based on message priority (col. 11, lines 52-61).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Wichter with Clare in order to enable managing of a plurality of sensors/devices from a remote location and to allow important messages to be processed immediately while the processing of less important messages, such as status requests, can be delayed until there are no more high priority messages remaining (Wichter, col. 9, lines 43-46; col. 11, lines 52-61).

Clare-Wichter does not explicitly teach that in response to receipt of the high priority message code, the at least one node is configured to broadcast one or more inhibit messages configured to inhibit messaging from nodes not engaged in conveying the high priority event, wherein the inhibit message is broadcast wirelessly.

In analogous art, Dupont teaches broadcasting wirelessly an inhibit message in response to the receipt of a high priority message code, wherein the inhibit message inhibits messaging from nodes not engaged in conveying high-priority data (col. 2, lines 60-64; col. 3, lines 51-53; col. 7, lines 32-36 ; col. 9, lines 3-6).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Dupont with Clare-Wichter in order to further expedite the routing of high-priority data over a simple priority routing scheme and to increase the overall throughput (Dupont, col. 2, lines 56-59).

Claim 94 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clare-Wichter-Dupont and further in view of Larsen.

76. Referring to claim 94, Clare-Wichter-Dupont do not specifically disclose communicating an energy cost to the plurality of network elements, wherein the plurality of network elements is configured to distribute data processing through the sensor network based on the energy cost.

However, Larsen discloses a wireless mesh network of nodes (see Fig. 1) wherein at least one node is configured to communicate an energy cost (*"A gradient message may be transmitted from the destination station to the originating station, the gradient message including data corresponding to the cumulative power required to transmit a data message from the originating station to the destination station via an optimum route"* – see p. 4, ¶3) where the distribution of data processing varies based on energy cost for communication (see Abstract; *"The transmit power required is calculated from the path loss to the other station. The weaker the received signal the larger the path loss, and thus the more transmit power required. The larger the transmit power required the larger the transmit power required gradient. Since a station routes towards areas of lower transmit power required it will tend to route to other stations that are closer"* – see p. 36, ¶4; *"Path losses may vary from 0 dB up to a maximum of 190 dB (+50 - (-140) = 190)"* – see p. 56, ¶1; *"If station I wanted to route data to station M it could chose to transmit either directly to station M, or via stations L or N. Station I would*

determine which route's power requirement would be the lowest, and use that path for routing of message segments to station M" – see p. 29, ¶3).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Larsen with Clare-Wichter-Dupont in order to use the least amount of transmission power possible in order to route data from a source to a destination via an optimum route (see Larsen, p. 4, ¶3).

Response to Arguments

77. Applicant's arguments with respect to claims 1, 63, 83, 92, 101, 103 and 112 have been considered but are moot in view of the new grounds of rejection.

Allowable Subject Matter

78. Claims 34 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT SCIACCA whose telephone number is (571)270-1919. The examiner can normally be reached on Monday thru Friday, 7:30 A.M. - 5:00 P.M. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SCOTT SCIACCA/
Examiner, Art Unit 2478

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2478